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ABSTRACT

Based on the National Center for Education Statistics' (NCES) surveys of public libraries (1974), public school library/media centers (1974), and academic libraries (1975), this assessment of library needs presents statistical data on libraries in the state of Colorado. Resources examined include staff, collection materials, acquisition of materials, space, and hours of access. Operating expenditures are also examined. The report provides a rundown of key findings, analyzes the data, shows limited and approximate indicators for school library/media centers, and describes the research methodology. Tables display the data. (FM)

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INVENTORY OF LIBRARY NEEDS, 1975:

COLORADO

A SUPPLEMENT TO THE

NATIONAL INVENTORY OF LIBRARY NEEDS, 1975

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For The

National Commission on Libraries and Information Science

April, 1979

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PREFACE

This Inventory of Library Needs for Colorado is a supplement to the National Inventory of Library Needs, 1975, NCLIS, 1977. As a supplement to be used in conjunction with the National Inventory, we have avoided unnecessary restatement of background and reference materials common to the entire national project. In particular, the approach to the Inventory effort, described in the National Inventory report in the Foreword and Preface, and by Chapter 2--"Setting," Chapter 3--"Indicators of Need Selected for the 1975 National Inventory," and the Appendices, especially Appendix A--"Methodology of the Inventory," are all relevant to this analysis for Colorado.

The statistical evidence concerning library needs in Colorado as of 1975, as revealed by regular reports of Public libraries and the 1975 Survey of Academic libraries conducted by the National Center for Education Statistics, is presented fully, with comparisons to Regional and National performance. As in the National Inventory, the resources examined are professional and support staff, collections of print and nonprint materials, hours of service, and operating expenditures, and for academic libraries, acquisitions of print and nonprint materials. To the extent similar data on a state basis were available from the earlier National Inventory of Library Needs, 1965, ALA, 1965, and from U.S. Office of Education reports of that period, comparisons with a decade earlier are presented. Methods used in deriving state estimates, additional to the general methodology described in the 1975 National Inventory report, are described concisely in Appendix A.

Basic data on public and academic libraries are presented in Chapters 3 and 5. Very limited and approximate indicators for school library/media centers are shown in Chapter 4. This study is based on the maximum information available for each type of library from the NCES surveys and associated state sample collections. Users concerned with a particular type of library may find the detailed chapter relevant to specific needs, in light of hypotheses or problems current in the field.

Each category of resource need has been analyzed in Chapter 2. Chapter 1 summarizes the public and academic library situation in Colorado at mid-decade, and highlights key findings. The inferences drawn are primarily statistical. To the extent some policy implications are suggested, they are intended as "strawmen" for stimulating public discussion in Colorado, and specifically by the State Conference on Libraries and Information Science. This State Inventory is a modest part of the evidence which will be available to citizens of Colorado for their deliberations this year and in the future. We hope it will be significantly useful.

Boyd Ladd

BOYD LADD

ADVISORY COMMITTEE ON THE 1975 NATIONAL INVENTORY OF LIBRARY NEEDS

The Committee was appointed by the National Commission on Libraries and Information Science (NCLIS), based on nominations by relevant professional associations, to serve as advisors to NCLIS and its contractor on the Inventory project. Members participated in a series of meetings and critiqued draft materials. They served in individual professional capacities and did not officially represent their institutions or their professional organizations. Associate members served as alternates and aides to members, and in each case participated substantially.

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INVENTORY OF LIBRARY NEEDS, 1975: COLORADO

CONTENTS

		Page
1.	Summary: Key Findings	1
2.	Analysis	6
3.	Public Libraries in Colorado	10
4.	School Library/Media Centers in Colorado	19
5.	Academic Libraries in Colorado	20
Appendix A.	Method	36

FIGURE

I.	Operating Expenditures for Colorado Libraries, 1975 and 1965	5

TABLES

1.1	Library Resources and Gaps, Colorado, 1975 and 1965	3
1.2	Expenditure Gaps to Fill Public and Academic Libraries Needs	4
3.1	Public Libraries Staffing, Colorado, West and Southwestern Region and U.S., 1974	12
3.2	Public Libraries Collections, Colorado, 1974	13
3.3	Public Libraries Collections, Colorado and United States, 1974 and 1962	14
3.4	Public Libraries Materials Acquisitions Indicators, Colorado, 1974	15
3.5	Hours of Service, Colorado Public Libraries, 1974	16
3.6	Public Libraries Operating Expenditures, Colorado, 1974	17
3.7	Public Libraries Operating Expenditures, Colorado and United States, 1974 and 1962	18

CONTENTS

Tables, cont'd.

		Page
5.1	Academic Libraries Staff Summary, Colorado, 1975.	25
5.2	Professional Staff in Academic Libraries, Colorado, 1975 and 1963 . . .	26
5.3	Academic Libraries Collections, Colorado, 1975.	27
5.4	Print Collections in Academic Libraries, Colorado, 1975 and 1963. . . .	28
5.5	Academic Libraries Acquisitions, Colorado, 1975	29
5.6	Academic Libraries Space, Colorado, 1975.	30
5.7	Academic Libraries Hours of Service, Colorado, 1975	31
5.8	Academic Libraries Operating Expenditures, Colorado, 1975	32
5.9	Operating Expenditures for Academic Libraries, Colorado, 1975 and 1963.	33
5.10	Staff, Hours of Service, and Space, Academic Libraries of Public and Private Institutions, Colorado, 1975	34
5.11	Collections, Acquisitions, and Operating Expenditures, Academic Libraries of Public and Private Institutions, Colorado, 1975.	35
A.1	Indicators of Need, Abbreviated	37

1. SUMMARY: KEY FINDINGS

Colorado suffered at mid-decade from shortages in staff, collections, and acquisitions needed in order to provide optimal levels of library services to the clientele of the public libraries and academic libraries in the state. Staff shortages appear to be especially significant, which would provide extensions in hours as well as more adequate service levels.

Identified needs, in terms of professional criteria for certain library resources, amount to $9 million to $15 million or more per year.

Public Libraries

Public libraries in Colorado were in a deficit position with respect to staff and collections and hours of service in 1974. Indeed, the position resulted from a severe shortfall in operating expenditures as compared to National Inventory guidelines.

Public School Library/Media Centers

Public school library/media centers in Colorado apparently had severe shortages in resources, although they provide service for essentially the expected hours per week. Staff, collections, and acquisitions were less than half the levels indicated by professional standards for such centers.

Academic Libraries

Considered with respect to the professionally defined Indicators of Need for academic libraries, Colorado's academic libraries as a group have cumulative shortages of the order of 25 to 35% of the needs for most resources.

Colorado's expenditures for operations of academic libraries fell short by one-half of the operating expenditures target of 6% of General and Educational Expenditures. Two-year institutions led in expenditure level, with an Index of 67%.

Private institutions as a group reported more adequate resources than did the public institutions as a group in all respects except acquisitions of materials during 1975.

Common Concerns

Fundamental problems of financing seem to underly the widespread needs for resources of all kinds in order to give better information service to the people of Colorado. Recognizing that proposals for increased funding for public services are appropriately subject to severe scrutiny for essentiality, library planning for Colorado at this time might appropriately incorporate considerations such as:

- Attentiveness to the citizens' perceived information needs--unmet as well as met.
- Selection of priority resource needs for first attention.
- Realistic actions toward filling resource gaps--on the basis of which interim steps will both be most effective and be recognized as productive by citizens and their decision-making representatives.
- Mobilizing wide participation in developing a consensus for the role of library and information services in a changing future for Colorado's people.
- Exploring how the coherent functions of learning, inquiry, and research by citizens of all ages can be better facilitated for the future, by devising and testing new relationships between libraries and other institutions, including but not limited to schools and broadcasting services.
- Practical ways to extend access to the available resource materials and skills by coordination across types of library, including special libraries and school library/media centers.
- Consideration of regional cooperative services as appropriate.
- Voluntary initiatives for trade-off and measurement-of-benefits kinds of efforts.
- Emphasis on demonstration of the benefits of services delivered, in relation to their costs.

TABLE 1.1 LIBRARY RESOURCES AND GAPS, COLORADO, 1975 and 1965

		Public Libraries (a)	Academic Libraries (b)	Combined Public & Academic (c)
Professional Staff				
1. 1965 Inventory[a]	Actual.....	n.a.	128	n.a.
2.	Gap.....	n.a.	34	n.a.
3. 1975[b]	Actual.....	n.a.	264	n.a.
4.	Gap.....	n.a.	150	n.a.
Print Collection				
5. 1965 Inventory[a]	Actual.....	2.34	2.55	4.89
6.	Gap.....	1.15	0.58	1.73
7. 1975[b]	Actual.....	5.00	7.6	12.6
8.	Gap.....	3.75	2.8	6.6
Operating Expenditures[c]				
9. 1965 Inventory[a]	Actual.....	$ 6.5	$ 5.9	$ 12.4
10.	Gap.....	$ 9.3	$ 3.6	$ 12.9
11. 1975[b]	Actual.....	$14.2	$ 13.9	$ 28.1
12.	Gap.....	$13.8	$ 14.5	$ 28.3

a/ Data reported are for surveys as follows: Public--1962; Academic--1963.

b/ Data reported are from NCES survey for academic libraries, and from Colorado Directory for public libraries.

c/ 1975 dollars in millions.

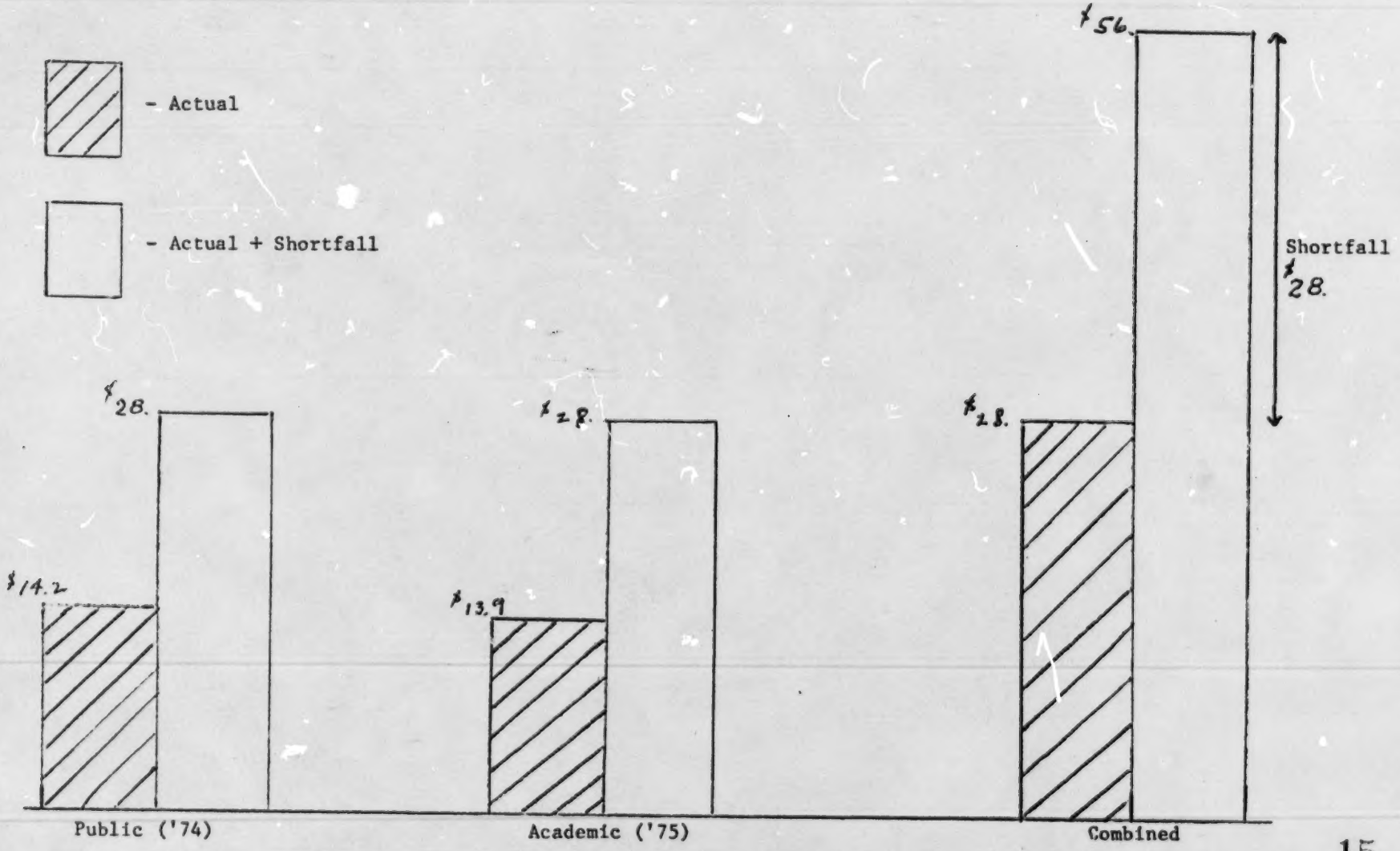
TABLE 1.2 EXPENDITURE GAPS TO FILL PUBLIC AND ACADEMIC LIBRARIES NEEDS, COLORADO, 1975

	Public Libraries (a)	Academic Libraries (b)	Total Two Types (c)
On An Annual Basis:			
1. Professional and Support Staff.....	$ 2.2	$ 3.4	$ 5.6
2. Print Acquisitions.....	$ 0.7	[$ 2.3]	[$ 3.2]
3. Nonprint Acquisitions.....	$ 0.2		
4. Hours of Service[a/].....	($ 0.8)	($ 3.5)	($ 4.3)
5. Total.....	$ 3.1	$ 5.7	$ 8.8
6. Operating Expenditures Gap.....	$ 12.7	$ 14.5	$ 27.2
7. Increment to Annual Acquisitions to Amortize Collections Gaps in 10 Years[b/].	$ 2.6	$ 3.5	$ 6.1

a/ The primary costs for extending hours of service would be provided by reaching the goals for staff, so the amounts in this line are non-add items in this table.

b/ This does not take into account expected inflation in prices of collection materials.

FIGURE 1. OPERATING EXPENDITURES, COLORADO LIBRARIES
(millions of current dollars)



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2. ANALYSIS

In this chapter we examine the resource needs of Colorado's public and academic libraries, as of about 1975, for certain principal resources. These include staff, collection materials, acquisitions of materials, and space. From the standpoint of the using clientele, these elements together with hours of service are important measures of library resource access. For this reason, hours of service is also examined in this analysis. Finally, operating expenditures, the means through which the resources are provided, cumulatively, is examined as a useful summary measure. The analysis is primarily in terms of the indicators of need adopted for the Inventory project, which are described in Appendix A and in National Inventory of Library Needs, 1975, NCLIS, 1977.

The data are drawn from Chapter 3 for Public libraries, and Chapter 5 for Academic libraries and Learning Resources Centers. Reference to the more detailed information in those source chapters may illuminate the necessarily highly summarized presentation in this chapter. References are made also to the situation with respect to school library/media centers, which is noted in Chapter 4 to the extent inferences can be drawn from the sample data available.

The summary of resources across types of libraries is intended to encourage a broad statewide perspective with respect to libraries and information services, by the governing bodies exercising their appropriate respective responsibilities. We hope this report will contribute to coordinated planning for the evolution of library programs in Colorado to the benefit of the entire population of the state.

Staffing

Colorado's public libraries as a group seem to be somewhat better staffed than the Nation as a whole. Academic libraries in Colorado are less well staffed than those in the remainder of the country with professional staff. The rough indications available for school library/media centers indicate very insufficient staffing for those centers, as compared with professional standards adopted for the National Inventory project.

	Staff	Additional Needed
Public Libraries	1,375	370
Academic Libraries	914	353
COMBINED (rounded)	2,300	720

Collections

Colorado's libraries have shortages of print materials, in terms of Inventory guidelines, more than half as large as the aggregate collections at mid-decade. The libraries of the Nation as a whole also were severely short--an aggregate gap of 5/8 as large as combined collections. With respect to nonprint materials, Colorado's public libraries have substantial indicated shortages, more than 80% as large as their holdings. School library/media centers have collections which are less than half the indicated print volumes, and only 5% of the indicated nonprint materials needed.

The print materials held by public and academic libraries in Colorado, and shortages in those collections as compared with Inventory guidelines, as of mid-decade, were:

	Print Collections	Shortages
	(millions of volumes equivalents)	
Public Libraries	5.00	3.75
Academic Libraries	7.06	2.61[a/]
COMBINED (rounded)	12.	6.

a/ Since a combined criterion for both print and nonprint materials is used for academic libraries, the combined deficit is attributed herein in proportion to the collections.

Similarly, for audiovisual and other nonprint materials, the Colorado situation was:

	Nonprint Collections	Shortages
	(thousands of titles)	
Public Libraries	324	275
Academic Libraries	540	200[a/]
COMBINED (rounded)	860	470

a/ Since a combined criterion for both print and nonprint materials is used for academic libraries, the combined deficit is attributed herein in proportion to the collections.

Acquisitions

Colorado's academic libraries in 1975 were falling short of needed additions to the collections to maintain currency--adding annually at mid-decade at 70% of the desirable rates. The academic libraries had an estimated shortfall in acquisitions of 182,000 volume-equivalents.

Both public libraries and public school library/media centers in Colorado were below their counterparts in the Region and in the Nation as a whole in acquiring print and nonprint materials.

Space

Colorado's academic libraries had space deficits in 1975 of about 600,000 square feet, compared to space utilized of 1.42 million square feet. Almost half the deficit was accounted for by four-year institutions. School library/media centers in Colorado on the whole have fractionally more space compared to indicated needs than such libraries in the rest of the Nation: 59%.

Hours of Service

On the whole, Colorado's academic and school libraries are high in the hours of library service extended to their clientele: 99% of college and university students have the indicated hours per week, and 98% of elementary-secondary pupils.

Public libraries in Colorado, on the other hand, provide less adequate hours per week of access than public libraries in the Nation at large: 84% of Colorado's population, and 50% for the Nation as a whole, do not have access as much as the indicated hours of 66 per week for libraries serving more than 25,000 people and 45 hours for those serving less than 25,000 people. In Colorado, 56% of the population served by the "small" libraries have access fewer than 45 hours per week, compared to 50% for the Nation.

Operating Expenditures

Academic libraries in Colorado fell short in 1975 by nearly $15 million of the expectation of 6% of General and Educational Expenditures of institutions of higher education, yet that is somewhat better financial support on a relative basis than the Nation's academic libraries as a whole achieved. The operating expenditures index for Colorado's public school library/media centers was 6%, compared with 7% for the Nation's centers as a group. Public libraries in Colorado were supported in 1974 at a level of one-half the indicated need, almost identical with the Nation's public libraries as a whole.

3. PUBLIC LIBRARIES IN COLORADO

Public libraries information for Colorado has been analyzed from the data published in the Directory of Colorado Libraries, 1975. The Directory reports information on Colorado's public libraries, but does not include the full detail provided in LIBGIS formats.

Staffing

According to staff positions (professional and support) reported, Colorado has a total number of positions almost equal to the total needs. The deployment among libraries does not match needs ideally, however: there are shortages amounting to 26% of needs. This seems to be materially better than the Regional average shortage of 37% or the National average of 46%, though these latter figures also include vacancies in authorized positions. The estimated budget requirement to fill the gap in Colorado is $2.2 million.

Collections

Colorado's public libraries have holdings of print materials aggregating 5 million volumes, about 60% of the needs indicated by applying quantitative standards professionally adopted for inventory purposes. That Index is lower than the performance of the West and Southwest Region as a whole (65%) and that of the U.S. (67%).

With respect to nonprint materials, the shortages are severe: holdings as a whole amount to only one-sixth of needs. Unlike other parts of the country, where some libraries exceed the needs by large amounts of nonprint, resulting in indexes in excess of 100% for the State, Colorado has few libraries even approaching the indicated requirement for nonprint materials.

It is estimated that the one-time costs at the end of 1974 to add to the collections state-wide enough print materials to meet collection standards would be $23 million. The comparable figure to bring Colorado's nonprint collections up to public library collection standards would be $2.8 million.

By comparison with the 1962 collection of National Inventory information, print holdings of Colorado public libraries have more than doubled. However, Colorado has gained more than one million people, so that in terms of 1965 books per person standards, Colorado public libraries were short in 1974. Considering both the population rise and the higher standards reflecting the growth in published materials, Colorado public libraries are less adequately stocked with print materials as of 1975 than was true in 1962.

The Colorado reports do not include information on print and nonprint materials acquired during the year, so that it is not feasible to compare actual acquisitions to standards, and to infer more recent trends in the adequacy of collections.

Based on the aggregates of the reports of 21 "national sample" libraries from Colorado to the NCES survey of 1974, it appears that Colorado libraries' acquisitions in 1974 fell substantially below Regional and National acquisitions, relatively. The shortfall is crudely approximated at about $900,000, of which $200,000 is for nonprint materials.

Hours of Service

Only one-sixth of Colorado's population was served in 1974 by libraries open as many as the indicated hours: 45 hours per week for libraries serving populations less than 25,000, and 66 hours per week for those serving 25,000 or more people. An estimated $840,000 for the year would have enabled all libraries to extend hours to reach those standards, of which $550,000 would have been used by the large libraries (serving populations of 25,000 or more).

Operating Expenditures

Colorado, like the country as a whole, spent in 1974 almost exactly half the amount on operating expenditures of public libraries as was indicated by the $10 to $12 per capita standards in effect. Colorado's "large" libraries reached 53% of standard.

For the State as a whole, this is a strong improvement, by 330% in actual expenditures since 1962. Expenditures expected have risen by about 2-1/2 times, so that the expenditures index is only 22% higher than in 1962. Operating expenditures per capita have risen (in constant 1975 dollars) by 34% from $3.96 in 1962 to $5.30 in 1974.

TABLE 3.1 PUBLIC LIBRARIES STAFFING, COLORADO, WEST AND SOUTHWESTERN REGIONS, AND U.S., 1974

	Colorado (a)	West and Southwestern Region (b)	United States (c)
Staffing			
1. Professional	n.a.	7,600	36,131
2. Support	n.a.	11,719	43,531
3. Total	1,375 a/	19,317	79,662
Staffing: Needs			
4. Professional	379	7,821	33,091
5. Support	1,012	19,147	89,162
6. Total	1,391	26,968	122,253
Staffing: Shortage			
7. Professional		1,974	8,454
8. Support		8,039	47,963
9. Total	370 b/	10,013	56,397
10. Staff Shortage as % of Need	26	37	46
11. Number of Libraries	112	1,450	8,307
12. Population Served (millions)	2.67	46.9	198.6
13. Aggregate Salaries (millions)	$ 7.91	$ 154.9	$ 588.
14. Estimated Additional Budget to Fill Staff Shortages (millions)	$ 2.2	$ 67.9	$ 344.

a/ Positions reported by State Directory (line 3); actual staff reported by 21 libraries to LIBGIS survey was 53% professionals.

b/ Inferred; this is a minimum estimate.

TABLE 3.2 PUBLIC LIBRARIES COLLECTIONS, COLORADO, 1974

	Colorado (a)	West and South-western Region (b)	United States (c)
Print Materials (Volumes & Equivalents)			
1. Book Collections (millions)	4.63	n.a.	387.6
2. Bound Periodicals & Microforms (millions)	.37	n.a.	9.4
3. Total Print (millions)	5.00	88.5	397.0
4. Indicated Needs (millions)	8.33	136.6	591.4
5. Shortage (millions)[a/]	3.75	51.2	229.6
6. Index[b/]	60.	65.	67.
Nonprint Materials			
7. Holdings (thousands)	52.	11,780.	45,577.
8. Indicated Needs (thousands)	324.	3,930.	19,110.
9. Shortages[a/] (thousands)	275.	2,150.	10,718.
10. Index[b/]	16.	300.	239.
Estimated One-Time Costs to Bring Collections Up to Indicated Needs			
11. Print Collections (millions)	$ 23.	$ 295.	$ 1,417.
12. Nonprint Collections (millions)	$ 2.8	$ 22.	$ 108.

a/ Shortages usually exceed the difference between "Indicated Minimum Needs" and "Actual" since some individual libraries hold collections larger than "Indicated Minimum Needs."

b/ Calculated as 100 (Holdings ÷ Indicated Needs).

TABLE 3.3 PUBLIC LIBRARIES COLLECTIONS, COLORADO AND UNITED STATES, 1974 and 1962

	Colorado			United States		
	1974	1962	% Changes	1974	1962	% Changes
	(a)	(b)	(c)	(d)	(e)	(f)
1. Number of Libraries	112.	95.	18.	8,307	6,565[a/]	26.5
2. Population Served	2.67	1.64	63.	198.6	155.7	27.6
Print Materials						
3. Holdings (millions)	5.00	2.34	114.	397.0	241.4	64.5
4. Shortages (millions)	3.75	1.15	226.	229.6	102.0	125.1
5. Fulfillment Index[b/]	57.	67.	-15.	63.	70.	-10.
6. Needed at '65 Standards (millions)	5.34	3.49	53.	417.	343.4	21.
7. Minimum Shortage at '65 Standards (millions)	.34	1.15	-70.	55.	70.	-21.
Nonprint Materials						
8. Holdings (thousands)	52.	n.a.	n.a.	45,600	n.a.	n.a.
9. Shortages[a/] (thousands)	275.	n.a.	n.a.	10,600	n.a.	n.a.
10. Fulfillment Index[b/]	16.	n.a.	n.a.	81.	n.a.	n.a.

a/ The population of public libraries was 7,527; survey responses were received from 6,589 and 6,565 of those reported adequately on collections.

b/ Calculated as $100\left[1 - \text{Shortages} \div (\text{Holdings} + \text{Shortages})\right]$.

TABLE 3.4 PUBLIC LIBRARIES MATERIALS ACQUISITIONS INDICATORS, COLORADO, 1974

Based on returns to the LIBGIS survey by the "national sample" libraries listed in Colorado, very rough indications of adequacy of acquisitions during 1974 are inferred, compared with Regional and National data.

	Colorado (a)	West and South western Region (b)	United States (c)
1. Acquisitions Index, Print Materials	75.	95.	88.
2. Acquisitions Index, Nonprint Materials	74.	169.	145.
Estimated Increment to 1974 Expenditures Required to Reach Indicated Pace of Acquisitions (millions)			
3. For Print Materials	$ 0.7	$ 10.1	$ 65.7
4. For Nonprint Materials	$ 0.2	$ 2.2	$ 11.2
Appropriate Proportionate Increase Over 1974 Actual Acquisitions (%)			
5. Print Materials	37.	23.	34.
6. Nonprint Materials	90.	32.	40.

TABLE 3.5 HOURS OF SERVICE, COLORADO PUBLIC LIBRARIES, 1974

	Colorado (a)	West and Southwestern Region (b)	United States (c)
1. Number of Libraries	112	1,450	8,307
2. Population Served (millions)	2.67	46.9	198.6
3. Population Served by Libraries Not Open as Much as Indicated Hours (millions)	2.23	29.2	99.7
4. Percent of Population Served by Libraries Not Open as Much as Indicated Hours	84.	62.	50.
5. Estimated Budget Requirement to Extend Service to Indicated Hours [a] (millions)	$ 0.84	$ 9.5	$ 30.6
6. Libraries Serving Less Than 25,000 Population ("Small")	92.	1,161.	6,797.
7. Population Served by "Small" Libraries (millions)	0.41	6.94	37.9
8. "Small" Libraries Open Fewer Than 45 Hours Per Week	74.	853.	5,253.
9. Population Served by "Small" Libraries Open Less Than 45 Hours Per Week (millions)	0.23	3.56	18.8
10. Proportion of "Small" Library Clientele Having Access to Public Library Service Less Than 45 Hours Per Week	56.	51.	50.
11. Estimated Budget Need for "Small" Libraries to Extend Service to 45 Hours Per Week (millions)	$ 0.29	$ 1.8	$ 12.4

[a] "Indicated Needs" for hours of service are:
66 hours per week for libraries serving populations of 25,000 or more;
45 hours per week for libraries serving populations of less than 25,000.

TABLE 3.6 PUBLIC LIBRARIES OPERATING EXPENDITURES, COLORADO, 1974

	Colorado (a)	West and Southwestern Region (b)	United States (c)
1. Operating Expenditures Expected (millions)	$ 25.65	$ 478.5	$1,977.
2. Operating Expenditures, Actual (millions)	$ 12.98	$ 255.1	$1,018.
3. Shortfall in Expenditures [a] (millions)	$ 12.70	$ 228.1	$1,004.
4. Operating Expenditures Fulfillment Index [b]	50.	52.	49.
Operating Expenditures for Libraries Serving Populations of 25,000 or More			
5. Expected (millions)	$ 21.84	$ 62.5	$1,636.
6. Actual (millions)	$ 11.60	$ 24.4	$ 849.
7. Shortfall [a] (millions)	$ 10.24	$ 39.4	$ 813.
8. Fulfillment Index [b]	53.	37.	50.

a/ Many jurisdictions support libraries to provide services above the minimum levels; consequently, the sum of the shortages in other libraries is greater than the difference between aggregate minimum operating expenditures needed and the total actual operating expenditures.

b/ Fulfillment Index = 100 (1 - shortage/need).

TABLE 3.7 PUBLIC LIBRARIES OPERATING EXPENDITURES, COLORADO AND UNITED STATES, 1974 and 1962

	Colorado			United States		
	1974	1962	% Changes	1974	1962	% Changes
	(a)	(b)	(c)	(d)	(e)	(f)
1. Operating Expenditures (millions)	$12.98	$ 3.02	330.	$1,018	$ 317.	221.
2. Population Served (millions)	2.67	1.64	63.	198.6	155.7	27.6
3. Minimum Operating Expenditures Needed (millions)	$25.65	$ 7.34	249.	$1,977	$ 756.	162.
4. Shortage[a] (millions)	$12.70	$ 4.32	194.	$1,004	$ 439.	129.
5. Fulfillment Index[b]	50.	41.	22.	49.2	41.9	17.4
6. Operating Expenditures Per Capita (average)	$ 4.86	$ 1.84	164.	$ 5.13	$ 2.04	151.
7. "Requirements" If Indicator Used in 1965 Was Applicable (millions)	$11.93	$ 7.34	63.	$ 876.	$ 756.	15.8
8. Operating Expenditures in 1975 Dollars[c] (millions)	$14.16	$ 6.50	118.	$1,110.	$ 682.	63.
9. Operating Expenditures Per Capita in 1975 Dollars[c]	$ 5.30	$ 3.96	34.	$ 5.60	$ 4.39	28.

a/ Some jurisdictions support libraries to provide services above the minimum levels; consequently, the sum of the shortages in other libraries is greater than the difference between aggregate minimum operating expenditures needed and the total actual operating expenditures.

b/ Fulfillment Index = 100 (1 - shortage/need).

c/ Using Implicit Price Deflators for state and local government purchases of goods and services, Department of Commerce, Bureau of Economic Analysis.

4. SCHOOL LIBRARY/MEDIA CENTERS IN COLORADO

The 1974 Public School Library/Media Centers survey for Colorado was not completed for a State sample of School Library/Media Centers. Thirty-eight schools in Colorado included in the national sample responded and Colorado was thereby represented in the national aggregates published by the National Center for Education Statistics (NCES), in Statistics of Public School Library/Media Centers, 1974, NCES, 1977. The resources information collected in that survey was analyzed, related to professional criteria for resource needs, in National Inventory of Library Needs, 1975, National Commission on Libraries and Information Science, 1977.

The 1974 population of 1,197 school library/media centers in 1974 could have been described adequately by a survey of 300 centers. In the absence of completed data from such a survey, the resources of school library/media centers are omitted from this analysis, with the expectation that Colorado library leadership will be able better than anyone else to supply information as to the relative unmet needs, and corresponding priorities.

The information which can be gleaned from the Colorado respondents to the national sample for the Public School Library/Media Center survey is a series of indexes on key resource categories. These indices are subject to sampling variability which, since it is based on 38 responses, is judged to be about 2-1/2 times as great as would have been true for the proposed State sample. The Indexes are presented here as rough indicators for such use as is appropriate.

	Index (%)
Professional Staff Index	21
Support Staff Index	10
Print Collection Index	43
Nonprint Collection Index	05
Print Acquisitions Index	25
Nonprint Acquisitions Index	05
Hours of Service Index	98
Space Index	59
Operating Expenditures Index	06

The indexes are expressed as the proportions which the total of available resources bear to the total of needs, according to the professional standards adopted for Inventory purposes.

5. ACADEMIC LIBRARIES IN COLORADO

The 40 academic libraries in Colorado which reported to the 1975 survey of college and university libraries conducted by the National Center for Education Statistics (NCES) had 146,000 students. Of those, 13,400 were graduate students. The full-time equivalent faculty was 5,910. (See Table 5.1.)

Staffing

The professional staff reported by Colorado's academic libraries in 1975 was 264, or 65% of indicated needs, as compared with the national average of 75%. The unmet needs amounted to 150 library professionals, or 37% of needs for the academic libraries of Colorado as a group. (See Table 5.1.) Public institutions account for 134 of the shortage, which is nearly 40% of total needs for that group of 28 institutions. Shortages amount to 26% of needs for private institutions. (See Table 5.10.)

More than 95% of the students, undergraduate and graduate, in Colorado institutions of higher education are served by libraries not fully meeting the professional staff needs indicated. (See Table 5.1.)

As compared with the situation in 1963, professional staffing is less adequate with a deficit at that time of about 20% of needs. The 1963 figure was better than the national average of 25%, but by 1975 Colorado's academic libraries are less well staffed than the Nation, for which the deficit was 30%.

Colorado's academic libraries were better staffed with support personnel in 1975. University libraries had on the whole 1% more than the minimum indicated support staff. Shortages in four-year college libraries and especially in two-year college libraries were relatively significant--182 in all, amounting to 28% for four-year colleges, and 50% for two-year colleges. The aggregate shortages in support staff amounts to 25%, better than the U.S. average for all academic libraries, of 33%. (See Table 5.1.)

The expenditures for salaries and wages for academic libraries in Colorado in 1975 amounted to $8 million. The additional funding that would have been needed to meet fully the staff requirements in that year is $3.4 million, of which $3.1 million would have been needed by public institutions. (See Tables 5.1 and 5.10.)

Collections

In all, Colorado academic libraries reported 7.6 million items, including one-half million nonprint items, in 1975. In total, the collections aggregated 77% of minimum indicated needs. For the United States as a whole, collections amounted to 98% of needs. The sum of shortages in individual academic libraries in Colorado amounted to 2.8 million, or 28% of needs. (See Table 5.3.)

The shortages were greatest in two-year college libraries/learning resource centers, where the collections were less than one-half of indicated needs. The relative adequacy of collections for two-year college libraries throughout the country, as a group, is 50%. The public institutions of Colorado were short 2.3 million items, and the private institutions about 0.5 million. (See Table 5.11.)

Expenditures for collection materials in 1975 amounted to $4.5 million, including $1.5 million for periodicals. The indicated shortages in collections, if filled at the average unit costs reported in 1975, would require one-time catch-up expenditures of about $35 million. Of this, $20 million was needed by the two-year college libraries. Public institutions needed about $28 million and private ones about $7 million. (See Tables 5.3 and 5.11.)

The relative adequacy of collections in Colorado as a whole has declined since the review in 1965 based on 1963 data. Shortages have increased from 600,000 to 2.8 million. Colorado held collections amounting to 82% of needs in 1963, slightly better than for the U.S. as a whole. By 1975, Colorado's position was 73% of needs, as compared with 79% for academic libraries of the U.S. as a whole. (See Table 5.4.)

Acquisitions

Academic libraries in Colorado added 37,000 nonprint items and 328,000 volumes of print materials in 1974. This compared with indicated needs for acquiring 520,000 items, for aggregate acquisitions of 70% of indicated needs, considering Colorado's academic libraries collectively. More than 180,000 additional volume-equivalent would have been necessary to fill the acquisitions needs of every academic library in Colorado for replacement and updating of their collections, not considering the deficits in size of collections. (See Table 5.5.)

The two-year colleges as a group acquired about 43,000 volume-equivalents reaching 90% of their indicated minimum needs for collection maintenance, well above the relative adequacy of acquisitions of universities and four-year colleges.

The expenditures for acquiring collection materials in 1974 reported for all Colorado academic libraries were $4.5 million. Another $2.3 million would have been needed in that year, it is estimated, to acquire the indicated minimum needs for maintenance of currency and condition of collections. Of that amount, half would have been needed by university libraries. About two-thirds of the acquisition needs are by public institutions. (See Tables 5.5 and 5.11.)

Space

Academic libraries in Colorado were in 1974 somewhat less adequately housed on the whole than institutions in the U.S. at large, according to the summary data reported. Shortages of space among all Colorado's academic libraries amounted to about 30% of total needs, compared to nearly one-fourth in the Nation as a whole. Seventy percent of Colorado's academic libraries were short of space, and 65% of academic libraries for the country as a whole. (See Table 5.6.)

Two-year college libraries/learning resource centers were less adequately housed than four-year college and university libraries. Almost all of the two-year institutions' libraries were short of space. Their total space shortage was 60% of the indicated space needs for that group of libraries.

Almost 90% of students in Colorado are served by libraries short of space according to the guidelines adopted for the National Inventory. Since this is greater than the proportion of libraries not meeting space needs, the larger institutions' libraries are on the average less well housed than smaller ones.

Private universities and colleges are generally well housed, with aggregate shortages only 4% of need. Public institutions have 32% shortages. (See Table 5.10.)

Hours of Service

According to reports of academic libraries in Colorado, only three libraries, each serving a public two-year college, were open to students less than 60 hours per week. The average hours per week, for all academic libraries in Colorado, was 77. Looking at the same data, weighted by number of students, the average student in Colorado's institutions of higher education had access to her/his academic library 87 hours per week. For comparison, the average hours per week for academic libraries Nationwide was 74, and the average hours per student was 82. (See Tables 5.6 and 5.10.)

The estimated incremental cost for 1974 to extend hours to 60 per week for the academic libraries in Colorado not then open as much as 60 hours, was about $3.5 million. All Colorado university libraries were open in excess of 100 hours per week.

Operating Expenditures

The criterion for operating expenditures for academic libraries is 6% of "General and Educational Expenditures." Fifteen percent of Colorado's institutions reported operating expenditures in 1974 of that level, compared with 25% nationally. Among universities, however, none of the Colorado institutions reported expenditures meeting that expectation. Libraries/learning resource centers of two-year colleges as a group reported operating expenditures 68% of the guideline, exceeding universities (53%), and four-year college libraries (43%). (See Table 5.8.)

The shortfall in library expenditures was almost $15 million, about one-half of expected expenditures according to the guideline. The shortfall amounted to $102 per student in the below-expectation institutions, on the average. Private institutions spent $177 per student on library operating expenditures, compared with $88 for public institutions.

From 1963 to 1975, Colorado's operating expenditures performance against the "expected" declined, on the whole, from an index of 74 to an index of 49. This is partly attributable to a rise in the guideline from 5% of the institutions' General and Educational Expenditures to 6%. The U.S. average fell over the same period from 68 to 63. Thus, Colorado lost ground relative to current guidelines, relative to

U.S. performance, and in terms of the percentage of total General and Educational Expenditures of the institutions. Libraries of two-year institutions in Colorado are strong in operating expenditures relative to other U.S. two-year colleges. University and four-year college libraries in Colorado were in 1975, on the average, supported at levels distinctly below the U.S. average. (See Table 5.9.)

TABLE 5.1 ACADEMIC LIBRARIES STAFF SUMMARY, COLORADO, 1975

	Total (a)	Universities (b)	Four Year (c)	Two Year (d)
1. Number of Libraries	40	3	23	14
2. Students Served (thousands)	146	47	68	31
3. Graduate Students (thousands)	13	8.8	4.6	0
4. Faculty (FTE: hundreds)	59	23	27	8
Professional Staff				
5. Staff Indicated	405	138	203	64
6. Staff, Actual	264	93	136	34
7. Staff Shortages [a]	150	46	74	30
8. Professional Staff Index [b]	65	67	67	53
9. Professional Staff Fulfillment Index [c]	63	67	63	54
10. Students Served, Libraries Not Meeting Indicated Need (%)	97	100	94	100
11. Faculty in Institutions Served by Libraries Not Meeting Indicated Need (%)	96	100	91	100
12. Graduate Students in Institutions Served by Libraries Not Meeting Indicated Need (%)	96	100	89	0
Support Staffing				
13. Staff Indicated	827	277	422	128
14. Staff, Actual	650	280	304	67
15. Staff Shortages [a]	202	20	118	64
16. Support Staff Index [b]	79	101	72	52
17. Support Staff Fulfillment Index [c]	75	93	72	50
18. Libraries with Full Support Staff (%)	13	67	9	7
19. Salaries, Actual (millions)	$ 8.11	$ 3.46	$ 3.80	$ 0.85
20. Salaries, Estimated Need for Staff Shortages (millions)	$ 3.4	$ 0.8	$ 1.8	$ 0.8

[a] Since some libraries have actual staff in excess of the minimum need shown by "Staff Indicated," the sum of shortages and actuals in general exceeds the Staff Indicated.

[b] Staff Index = 100 (Actual/Indicated).

[c] Staff Fulfillment Index = 100 (1-shortage/indicated).

TABLE 5.2 PROFESSIONAL STAFF IN ACADEMIC LIBRARIES, COLORADO
1975 AND 1963

	Colorado			United States		
	1975	1963[a]	% Change	1975	1963[a]	% Change
	(a)	(b)	(c)	(d)	(e)	(f)
1. Number of Libraries	40	21	90	3,026	2,075	46
2. Professional Staff, Total	264	128	106	22,880	11,200	104
3. Identified Gaps[b]	150	34	341	9,759	3,848	154
4. Professional Staff (2) as Percentage of (2 + 3)[c]	64	79	-19	70	74	-5
Universities and Four-Year Colleges[d]						
5. Number of Institutions	26	16	62	1,745	1,339	30
6. Professional Staff	229	121	89	10,934	4,696	133
7. Gaps[b]	120	28	329	4,109	2,753	49
8. Professional Staff (6) as Percentage of (6 + 7)[c]	66	81	-19	73	63	16
Two-Year Colleges						
9. Number of Institutions	14	5	180	1,121	591	90
10. Professional Staff	34	7	386	3,869	969	299
11. Gaps	30	6	400	3,230	1,095	195
12. Professional Staff (10) as Percentage of (10 + 11)[c]	53	54	-2	55	47	17

a/ Reported by National Inventory of Library Needs, ALA, 1965, except as otherwise indicated. and except for derived percentages.

b/ This data for the State for 1963 is estimated, using data from the primary source, supplemented by information from the Library Statistics of Colleges and Universities, 1962-63, Institutional Data, USDHEW, 1964.

c/ This approximates, but is not identical to, the "professional staff fulfillment indexes" described in the text and presented in other tables; this variant is used here for comparison to available 1963 data.

d/ In the 1963 Inventory, institutions of higher education were classified as two-year and four-year, the latter category including universities.

TABLE 5.3 ACADEMIC LIBRARIES COLLECTIONS, COLORADO, 1975

	Total (a)	Universities (b)	Four-Year (c)	Two-Year (d)
1. Aggregate Collection (millions)	7.60	3.59	3.57	0.43
2. Nonprint Collection (included in line 1) (millions)	0.54	0.26	0.22	0.06
3. Collections Open Less Than 60 Hours Per Week (thousands)	14	0	2.2	12
4. Indicated Need (millions)	9.88	4.42	4.51	.95
5. Shortages (millions) a/	2.81	0.83	1.46	0.52
6. Collections Index (100[(1)/(4)])	77	81	79	45
7. Collections Fulfillment Index 100[1-(5)/(4)2	72	81	68	45
8. Students Served by Libraries Not Meeting Indicated Need (%)	89	100	77	100
9. Graduate Students Served by Libraries Not Meeting Indicated Need (%)	97	100	93	n/a.
10. Faculty in Institutions Served by Libraries Not Meeting Indicated Need (%)	81	100	60	100
11. Expenditures for Periodicals, 1975 (millions)	$ 1.48	$ 0.69	$ 0.72	$ 0.07
12. Expenditures for All Collection Materials, 1975 (millions)	$ 4.55	$ 1.95	$ 2.05	$ 0.55
13. Incremental Expenditures to Fulfill Indicated Needs (millions)	$34.7	$ 11.6	$16.4	$ 6.7

a/ Shortages for any group of libraries generally exceed the difference between Indicated Need and Aggregate Collection since some libraries have collections in excess of the minimum Indicated Need.

TABLE 5.4 PRINT COLLECTIONS IN ACADEMIC LIBRARIES, COLORADO, 1975 and 1963

	Colorado			United States		
	1975	1963	% Change	1975	1963	% Change
	(a)	(b)	(c)	(d)	(e)	(f)
1. Number of Libraries	40	21	90	3,026	2,075	46
2. Collections Total (millions of volumes)	7.6	2.55	198	612	215	185
3. Identified Gaps [a] (millions of volumes)	2.8	0.58	383	158	55.3	186
4. Collections (2) as Percentage of (2+3) [b]	73	82	-11	79	80	-1
Universities and Four-Year Colleges [c]						
5. Number of Libraries	26	16	62	1,905	1,484	28
6. Collections (millions of volumes)	7.2	2.49	189	569	n.a.	n.a.
7. Gaps [a] (millions of volumes)	2.3	0.53	334	124	47.4	162
8. Collections (6) as Percentage of (6+7) [c]	76	82	-7	82	n.a.	n.a.
Two-Year Colleges						
9. Number of Libraries	14	5	180	1,121	591	90
10. Collections (millions of volumes)	0.4	.057	602	43	8.0	437
11. Gaps (millions of volumes)	0.5	.048	942	44	7.9	457
12. Collections (10) as Percentage of (10+11) [b]	44	54	-19	49	50	-2

a/ "Gaps" for 1963 excluded consideration of 129 four-year institutions which held 300,000 or more volumes.

b/ This approximates, but is not identical to, the "Collections Fulfillment Index;" this variant is used for comparison with available 1963 data.

c/ In the 1965 inventory, universities were not separately identified from four-year institutions.

TABLE 5.5 ACADEMIC LIBRARIES ACQUISITIONS, COLORADO, 1975

	Total (a)	Universities (b)	Four-Year (c)	Two-Year (d)
1. Total Holdings (millions)	7.60	3.59	3.57	0.43
2. Aggregate Acquisitions (thousands)	365	140	182	43
3. Nonprint Acquisitions (included in 2) (thousands)	37	9	19	8
4. Indicated Acquisitions Needed (thousands)	520	221	252	48
5. Shortages (thousands) a/	182	81	86	15
6. Acquisitions Index b/	70	63	72	90
7. Acquisitions Fulfillment Index c/	65	63	66	69
8. Students Served by Libraries Not Meeting Indicated Need (%)	69	100	53	58
9. Graduate Students Served by Libraries Not Meeting Indicated Need (%)	86	100	60	n.a.
10. Faculty in Institutions Served by Libraries Not Meeting Indicated Need (%)	77	100	63	59
11. Implied Collection Renewal Interval (years)	21	26	20	10
12. Nonprint to Total Acquisitions Ratio (%)	10	6	10	19
13. Expenditures in 1975 for Acquisitions of Collection Material (millions)	$ 4.55	$ 1.95	$ 2.05	$ 0.55
14. Incremental Expenditures to Acquire Full Indicated Need (millions)	$ 2.27	$1.13	$ 0.97	$ 1.19

a/ Shortages, for any group of libraries, generally exceeds the difference between Indicated Acquisitions Needed and Aggregate Acquisitions, because some libraries acquire in excess of the minimum Indicated Acquisitions.

b/ Aggregate Acquisitions (line 2) as a percentage of Indicated Acquisitions Needed (line 4).

c/ 100 [1-(line 5 ÷ line 4)]

TABLE 5.6 ACADEMIC LIBRARIES SPACE, COLORADO, 1975

	Total (a)	Universities (b)	Four-Year (c)	Two-Year (d)
1. Indicated Space Need (million square feet)	1.86	0.70	0.91	0.25
2. Actual Space (million square feet)	1.42	0.51	0.81	0.10
3. Shortage in Space (million square feet) a/	0.60	0.18	0.26	0.15
4. Index of Adequacy of Space (100 [(2)/(1)])	77	74	89	40
5. Proportion of Libraries Not Meeting Need	72	100	57	93
6. Proportion of Students Served by Libraries Not Meeting Need	89	100	77	97
7. Proportion of Professional and Support Staff in Libraries Not Meeting Indicated Need	83	100	75	98
8. Proportion of Faculty in Institutions Served by Libraries Not Meeting Space Need	87	100	73	98
9. Space Fulfillment Index 100[1-(3)/(1)]	68	74	71	40

a/ Shortage in Space, for any group of libraries, generally exceeds the difference between Indicated Space Need and Actual Space since some libraries occupy space in excess of the minimum Indicated Space Need.

TABLE 5.7 ACADEMIC LIBRARIES HOURS OF SERVICE, COLORADO, 1975

	Total (a)	Universities (b)	Four-Year (c)	Two-Year (d)
1. Libraries Open Less Than 60 Hours Per Week	2	0	1	1
2. Students Served by Libraries Open Less Than 60 Hours Per Week (%)	1	0	0	3
3. Graduate Students Served by Libraries Open Less than 100 Hours Per Week (%)	34	0	98	0
4. Faculty in Institutions Served by Libraries Open Less Than 100 Hours Per Week	60	0	100	100
5. Hours Open Per Week for Average Library [a/]	77	104	78	68
6. Hours Library Service Accessible to Average Student [b/]	87	106	81	69
7. Average Hours Collection Materials are Available [c/]	93	106	83	69
8. Index of Student Access [d/]	145	177	135	115
9. Collection Not Accessible as Much as 60 Hours (thousands)	14.3	0	2.2	12.1
10. Average Collection Availability Per Student [e/]	567	1,407	233	24
11. Incremental Budget to Keep All Academic Libraries Open at Least 60 Hours Per Week (millions)	$ 3.55	$ 0	$ 2.78	$ .77
12. Further Incremental Budget (in addition to 11) to Keep All University Libraries Open at Least 100 Hours Per Week (millions)	$ 0	$ 0	$ 0	$ 0

a/ Sum of hours open by individual libraries, divided by number of academic libraries.
b/ Average of the hours open, weighted by the number of students.
c/ Average of the hours open, weighted by the size of collection.
d/ Line 6 divided by 60.
e/ "Collection availability"--size of collection x hours of service per week, in millions; average collection availability per student is average collection availability, weighted by enrollment.

TABLE 5.8 ACADEMIC LIBRARIES OPERATING EXPENDITURES, COLORADO, 1975

	Total (a)	Universities (b)	Four-Year (c)	Two-Year (d)
1. Operating Expenditures Expected (millions)	$ 28.25	$ 11.15	$ 14.67	$ 2.43
2. Operating Expenditures, Actual (millions)	$ 13.87	$ 5.86	$ 6.35	$ 1.66
3. Shortfall in Expenditures[a/] (millions)	$ 14.51	$ 5.28	$ 8.43	$ 0.80
4. Libraries Below Indicated Expenditures (%)	85	100	83	86
5. Students Served by Libraries Below Indicated Expenditures (%)	97	100	99	90
6. Faculty in Institutions Served by Libraries Below Indicated Expenditures (%)	98	100	99	90
7. Professional Staff in Libraries Below Indicated Expenditures (%)	95	100	95	86
8. Operating Expenditure Index [b/]	49	53	43	68
9. Shortfall on a Per-Student Basis[c/]	$102	$113	$126	$ 29
10. Expenditures Fulfillment Index[d/]	49	53	43	67

a/ Shortfall in Expenditures, for any group of libraries, generally exceeds the difference between Operating Expenditures Expected and Actual since some libraries have actual expenditures greater than the minimum "Expected."

b/ Line 2 divided by Line 1, expressed as a percentage.

c/ Shortfall as average over the students enrolled in institutions having shortfalls in library expenditures for operations.

d/ 100 [1-(3)/(1)]

TABLE 5.9 OPERATING EXPENDITURES FOR ACADEMIC LIBRARIES, COLORADO, 1975 AND 1963

	Colorado			United States		
	1975	1963	% Change	1975	1963	% Change
	(a)	(b)	(c)	(d)	(e)	(f)
1. Number of Libraries Reported	40	21	90	3,026	2,075	46
2. Operating Expenditures, Total (millions)	$ 13.9	$ 2.80	396	$1,071	$ 213	$ 403
3. Operating Expenditures in 1963 Dollars [a] (millions)	$ 6.6	$ 2.80	136	511	213	140
4. Identified Gaps in Current Dollars (millions)	$ 14.5	$ 1.71	748	621	100	521
5. Operating Expenditures (2) as Percentage of (2+4) [b]	49	74	-34	63	68	-7
Universities and Four-Year Colleges [c]						
6. Number of Libraries	26	16	62	1,905	1,484	28
7. Operating Expenditures (millions)	$ 12.3	$ 2.69	357	$ 909	$ 201.4	$ 351
8. Operating Expenditures in 1963 Dollars [a] (millions)	$ 5.9	$ 2.69	119	434	201.4	115
9. Gaps in Current Dollars (millions)	$ 13.7	$ 1.67	720	523	92.5	465
10. Operating Expenditures (7) as Percentage of (7+9) [b]	47	62	-24	63	69	-9
Two-Year Colleges						
11. Number of Libraries	14	5	180	1,121	591	90
12. Operating Expenditures (millions)	$ 1.7	$ 0.105	1519	$ 160	$ 11.6	$1,279
13. Operating Expenditures in 1963 Dollars [a] (millions)	$ 0.8	$ 0.015	662	$ 76	$ 11.6	555
14. Gaps in Current Dollars (millions)	$ 0.8	$ 0.036	2122	$ 98	$ 7.5	1,207
15. Operating Expenditures (12) as Percentage of (12 + 14) [b]	68	74	-8	62	61	2

a/ Applying Implicit Price Deflators for State and local government purchases of goods and services, Department of Commerce, Bureau of Economic Analysis.

b/ This approximates, but is not identical to, the "Expenditures Fulfillment Index;" this variant is used for comparison with available 1963 data.

c/ In the 1963 inventory, universities were not distinguished from four-year institutions.

TABLE 5.10 STAFF, HOURS OF SERVICE, AND SPACE, ACADEMIC LIBRARIES OF PUBLIC AND PRIVATE INSTITUTIONS, COLORADO, 1975

	TOTAL (a)	PUBLIC (b)	PRIVATE (c)
1. Number of Libraries Reported	40	28	12
Professional Staff			
2. Actual	264	215	489
3. Shortages	150	134	157
4. Fulfillment Index	63	61	74
Support Staff			
5. Actual	650	532	118
6. Shortages	203	186	173
7. Fulfillment Index	75	73	87
8. Salaries, Estimated Need for Staff Shortages (millions)	$ 3.4	$ 3.1	$ 0.3
Hours of Service			
9. Libraries Open Less Than 60 Hours Per Week	2	1	1
10. Students Served by Libraries Open Less Than 60 Hours Per Week (%)	1	3	3
11. Incremental Budget to Keep All Academic Libraries Open at Least 60 Hours Per Week (thousands)	$ 3.55	$ .77	$ 2.78
Space			
12. Space Occupied (millions sq.ft.)	1.42	1.02	.40
13. Space Shortages (millions sq.ft.)	.60	.58	.02
14. Fulfillment Index	68	62	96

TABLE 5.11 COLLECTIONS, ACQUISITIONS, AND OPERATING EXPENDITURES, ACADEMIC LIBRARIES OF PUBLIC AND PRIVATE INSTITUTIONS, COLORADO, 1975

	Total	Public	Private
	(a)	(b)	(c)
1. Students in Institutions Served by Academic Libraries (thousands)	146.	132.	13.
Collections			
2. Total, End of Year (millions)	7.60	5.61	1.99
3. Shortages (millions)	2.81	2.27	.54
4. Fulfillment Index	72.	70.	76.
5. Incremental Expenditures to Fill Indicated Needs (millions)	$ 34.7	$ 28.0	$ 6.7
Acquisitions			
6. Acquired During Year (thousands)	365.	299.	65.
7. Shortfall in Acquisitions (thousands)	182.	121.	61.
8. Fulfillment Index	65.	69.	52.
9. Incremental Expenditures to Acquire Full Needs (millions)	$ 2.27	$ 1.51	$ 0.76
Operating Expenditures			
10. Operating Expenditures (millions)	$ 13.9	$ 11.6	$ 2.3
11. Dollar Expenditure Per Student	$ 95.	$ 88.	$177.
12. Shortfall in Expenditures (millions)	$ 14.5	$ 13.4	$ 1.0
13. Average Shortfall Per Student in Institutions Which are Short (dollars)	$102.	$104.	$ 79.
14. Expenditure Fulfillment Index	49.	46.	68.

APPENDIX A

METHOD

This State Inventory of Library Needs as of 1975 is a supplement to the National Inventory of Library Needs, 1975, National Commission on Libraries and Information Science, 1977. The methodology of the project is described briefly below. In particular, the methods are described for certain state estimates which were not used in the national report.

"Indicators of Need" were developed for the inventories, based on a consensus by an Advisory Committee including librarians of extensive experience in each category covered: public, public school, and academic libraries. The concept of the "Indicator of Need" is a statistical measure which, when applied to the size and workload of a number of libraries of the same type, will on the average indicate an adequate minimum amount of a particular resource that is needed. These general yardsticks do not apply as "standards" to individual libraries, since they cannot reflect the many specific circumstances of a particular library. "Indicators of Need" were defined for professional staff, support staff, print collections, nonprint collections, print acquisitions, nonprint acquisitions, space, hours of service, and operating expenditures. (See Table A-1.)

Indicators of need were compared to the resources actually reported by individual U.S. libraries to NCES surveys in 1974 and 1975 and the comparisons were summarized in the National Inventory. In this report for the state, data reported by Colorado public libraries and published in the Directory of Colorado Libraries, 1975, have been analyzed and compared to the indicators and to national data from the NCES survey. Academic library information for Colorado is based on responses to the NCES survey.

A previous inventory, in 1965, compared professional staff, book stock, and operating expenditures to then accepted professional standards. The current inventory reports include comparisons to the situation about a decade earlier, as revealed by the 1965 Inventory supplemented by information from the reports of underlying surveys.

TABLE A-1. INDICATORS OF NEED, ABBREVIATED [1]

Resource	Public Libraries	School Library/ Media Centers	Academic Libraries (Univ. & 4-Yr.)	Libraries or Learning Resource Centers (2-Yr. Colleges)
	——(Wherever alternatives are given, the Indicated Need is whichever is greater)——			
1. STAFF				
A. Professional	1 per 6,000 population	1 per 500 pupils, plus 1.	1 per 500 students up to 10,000 plus allowance for collections, acquisitions, additional students	1 per 600 students (minimum of 3)
B. Support	2 per professional, actual or indicated	2 per professional, actual or indicated	2 per professional, actual or indicated	2 per professional, actual or indicated
2. COLLECTION				
A. Print	10,000 volumes or 3 per capita (and 2 per capita over 500,000)	8,000 titles or 10,000 volumes, or 20 per pupil	85,000 volumes plus 100 per faculty plus 15 per student plus allowances for fields	40,000 plus 50 per faculty plus 10 per student plus 165 per major/minor field
B. Nonprint	1,000 or 1 per 10 persons (with graduation with population)	10,000 items or 20 per pupil	85,000 volumes plus 100 per faculty plus 15 per student plus allowances for fields	40,000 plus 50 per faculty plus 10 per student plus 165 per major/minor field
3. ACQUISITIONS				
A. Print	1 per 6 persons up to 500,000 and 1 per 8 persons above 500,000	10% of collection, actual or indicated	5% of collection, actual or indicated	5% of collection, actual or indicated
B. Nonprint	10% of collection indicated, up to 1,000,000 population; 7% for population over 1,000,000	10% of collection, actual or indicated		

Resource	Public Libraries	School Library/ Media Centers	Academic Libraries (Univ. & 4-Yr.)	Libraries or Learning Resource Centers (2-Yr. Colleges)
4. NET ASSIGNABLE SPACE	0.6 sq.ft. per capita population, in main library	8.0 sq.ft. per pupil	6-1/4 sq.ft. per student plus collection and administrative space	5-1/4 sq.ft. per student plus collection and administrative space
5. OPERATING EXPENDITURES	$9 per capita up to 150,000 population; $10 per capita for 150 to 500 thousand; $12 per capita over 500 thousand	$115 per pupil	6% of General and Educational Expenditures	5% of General and Educational Expenditures
6. HOURS OF SERVICE	45 per week up to 25,000 population; 66 per week for more than 25,000	30 per week	60 per week	60 per week

a/ For more complete description, see National Inventory of Library Needs, 1975, chapter 3, and Exhibits A-D inclusive.

The resources data for U.S. libraries circa 1975 for the National Inventory was provided by the National Center for Education Statistics' surveys of Public Libraries (1974), Public School Library/Media Centers (1974), and College and University Libraries (1975). The NCES reports on those surveys describe the methods used and the estimated precision of those results.

The coverage of public libraries for Colorado is essentially complete, as reported in the "Directory." The Directory did not provide information on acquisitions of print and nonprint materials in physical terms, or space occupied, and on staff identified as between professional and support staff. To limited extent, the data from 20 public libraries which reported to the NCES survey of public libraries have been used to supplement Directory information for such items.

The survey of school library/media centers in 1974 in Colorado was not successful in completing a state sample. Colorado did participate in the National sample, and very limited indexes of adequacy of resources for school library/media centers in Colorado have been inferred from that small sample.

For academic libraries, the analysis is in terms of the 40 Colorado libraries which reported to and were included in the NCES Survey of College and University Libraries, 1975.

Conventions and methods of estimation are for the most part as described in the National Inventory of Library Needs, 1975. Supplemental sources used and assumptions and techniques specific to the state estimates reported here are described below.

1. For comparison of expenditures at different times, current dollar expenditures reported have been expressed in constant 1975 dollars, using as a conversion factor the Implicit Price Deflators for state and local government purchases of goods and services, prepared by the Bureau of Economic Analysis, U.S. Department of Commerce.

2. For public libraries, 1962 data on collections (Table 3.3), and on operating expenditures (Table 3.7), were not presented in the 1965 Inventory, which showed only the resources and deficits for libraries not meeting standards. These state totals have been compiled from six source tables, three in Statistics of Public Libraries, Part I, OE-15051, 1965, and three in 1962 Statistics of Public Libraries Serving Populations of Less Than 35,000, University of Illinois Graduate School of Library Science, 1966.

3. For academic libraries, state data for 1963 for professional staff (Table 5.2), for collections (Table 5.4), and for operating expenditures (Table 5.9), were not published in the National Inventory of Library Needs, 1965. Those totals have been compiled for this Inventory by analysis of institutional reports in Library Statistics of Colleges and Universities, 1962-63, Institutional Data, OE-15023, 1964, to identify those "not meeting standards" and therefore included in the Inventory figures, and those "meeting standards" which are added thereto.